

**B'Safe & B'Secure**  
*The Door to Safety Swings*

**Akshata V.S.<sup>1</sup>, Rumana Pathan<sup>2</sup>, Poornima Patil<sup>3</sup> and Farjana Nadaf<sup>4</sup>**

1Department of Computer Science Engineering, KLS's VDRIT, Haliyal, India

2 Department of Computer Science Engineering, KLS's VDRIT, Haliyal, India

3 Department of Computer Science Engineering, KLS's VDRIT, Haliyal, India

4Department of Computer Science Engineering, KLS's VDRIT, Haliyal, India

Email: akshatavelpur@gmail.com, rumanamspathan@gmail.com,

poornima1892@gmail.com, farz999nadaf@gmail.com

**Abstract—**

The history of violence against women remains vague in scientific literature. This is in part due to the fact that many kinds of violence against women (specifically rape, sexual assault, and domestic violence) often go unreported or under-reported, often due to societal norms, taboos, stigma, and the sensitive nature of the subject[3]. It is widely recognized that even today, a lack of reliable and continuous data is an obstacle in having a clear picture of violence against women, so a historical picture of violence against women becomes even more difficult to capture. Although the history of violence against women is difficult to track, some claim that violence against women has been accepted, and even condoned and legally sanctioned throughout history. According to Worlds Women Organization[4] the crimes against women have increased beyond the thinking of common people. So we propose this paper for developing an Android application called B'Safe & B'Secure that ensures both safety and security for women. This app contains unique features such as if the user is in trouble and doesn't have internet connection at that time the text message will be sent to the registered contacts with the user's current location using SOS technique. This app can also be used in case of emergency, the user can trace the location and contacts of nearby hospitals and police stations using GPRS.

Index Terms—B'Safe & B'Secure, Android, SOS(Save Our Soul), GPRS(General Packet Radio Service)

## **I. Introduction**

Women are adept at mobilizing diverse groups for a common cause. They often work across ethnic, religious, political, and cultural divides to promote peace. We are all aware of importance of women's safety, but we must realize that they should be properly protected. Women's are not as physically strong as men, in an emergency situation a helping hand would be a relief for them.

The best way to minimize your chances of becoming a victim of violent crime (robbery, sexual assault, rape, domestic violence) is to identify and call on resources to help you out of dangerous situations.

Whether you're in immediate trouble or get separated from friends during a night out and don't know how to get home, having these apps on your phone can reduce your risk and bring assistance when you need it. Although several were originally developed for students to reduce the risk of sexual assault on campus, they are suitable for all women.

In the light of recent outrage in Delhi which shook the nation and woke us to the safety issues for our daughters, people are gearing up in different ways to fight back. A host of new apps have been developed to provide security systems to women on their phones.

Here we introduce an app which ensures the safety of women. This helps to identify and call on resources to help the one out of dangerous situations. This reduces risk and brings assistance when we need it and help us to identify the location of the one in danger.

### ***A. Purpose***

The main feature of this application is to provide security for the women.

This app will send a text message to the recipient numbers that includes the current position of the victim using SOS service.

They can find the nearby police-station and hospital details by using GPRS.

### ***B. Paper Organization***

Organization of paper is as follows: SECTION II covers the design of the system which includes explanation about existing systems and proposed system, it also contains details about different modules implemented in the system, and DFD's, activity diagram. SECTION III explains about technologies implemented in the system. SECTION IV covers the view on working of an application and results of

the application. Finally SECTION V takes the conclusion and feature scope for the system development.

## **II. SYSTEM DESIGN**

### ***A. Existing System***

With the recent and fast developments in technology, smart phones offer many advanced services rather than just making calls, so the number of smart phone users increases day by

day. User can install and run many smart phone applications that make life easier or enjoyable.

### ***I. Hollaback***

"Hollaback! You have the power to end street harassment" is the tag line for this app which tackles the crime one perpetrator at a time. Users can choose to take and upload a photo of their harasser "caught in the act" and submit their story to be recorded and mapped on [ihollaback.org](http://ihollaback.org). This not only signals the perpetrator that his image will be shared and posted on a street harassment prevention website, but also warns others of areas in which harassment occurs. Hollaback's premise is that "street harassment is a gateway crime that makes other forms of gender-based violence OK." They encourage users to submit stories and photos of street harassment at every level from catcalls from total strangers to groping hands on a crowded bus and individuals exposing themselves on a subway.

#### ***Disadvantages of Hollaback***

There is no immediate call for help, hence no self protection.

In case of emergency the victim may not have time to click the harasser photo.

### ***II. VithU***

Channel V has named the application "VithU" and it is accessible on the Google Play Store essentially VithU is the crisis and emergency application that, at the click of the power button of your android cell phone two times successively starts conveying cautious messages like clockwork in every two minutes to your contacts that you bolster into the application as the designated receivers. The VithU application does not take even a penny for download so assuming that you might want to be secured; this is the most ideal way. The message that is sent from the app to the guardian says that "I'm in a risk, I require assistance", if its not too much trouble take after my area.

The recipient will get a connection to your area like clockwork in every two minutes giving them your upgraded area locations.

#### ***Disadvantages of VithU***

It doesn't provide features like abstracting information about Police Stations & Hospitals.

### ***B. Proposed System and its Advantages***

The prime objective of "B'Safe B'Secure" is to create a fully pledged android application designed for women's safety and security. "B'Safe B'Secure" has an unobtrusive screen that is simple to operate, that is two taps will send out a predefined text message "I'm in danger please help me", to the registered contacts of your choice which automatically includes address and exact location of yours.

Even in the absence of network the application will send messages by retrieving last accessible location. This app also contains a pre-programmed national hotline numbers which will trace the locations and contacts of nearby hospitals and police stations. Thus this app is

not only helpful for women but also can be used by a common person, who faces an unexpected emergency or accidents.

***Advantages***

It has extra features which will trace the locations and contacts of nearby hospitals and police stations. It works even in absence of network by retrieving the last accessible location.

***C. System Modules***

This project contains the following five modules:

***I. Profile Module***

Profile is an important component to users, which helps the users to add his/her personal details: Name, Address, Email Id, Mobile Number.

***II. Police Station***

The user will get information about the nearer police station

***III. Hospital***

When hospital option is clicked in my application, the user gets required details of near by hospitals.

***IV. Emergency Contacts***

Required details of one who is in danger will be contacted to the right persons or family members or friends or help lines

***V. Emergency Button***

When we sense any danger, we can escape by using emergency button.

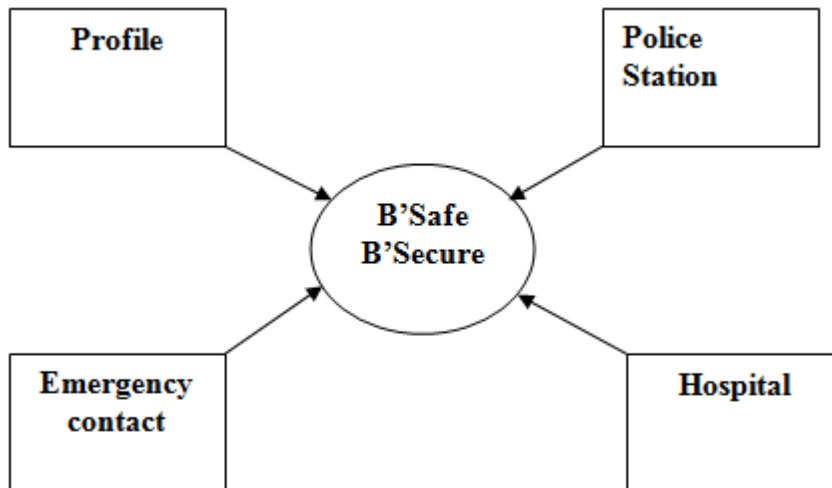
***D. Data Flow Diagram (DFD)***

Data Flow Diagrams are a graphical tool used to describe and analyze the movement of data through a system. DFD's are used to capture the essential feature of both existing real system and future physical implementation of the system.

The DFD is a graphical technique that depicts the information flow and the transforms that are applied as data move from input to the output.

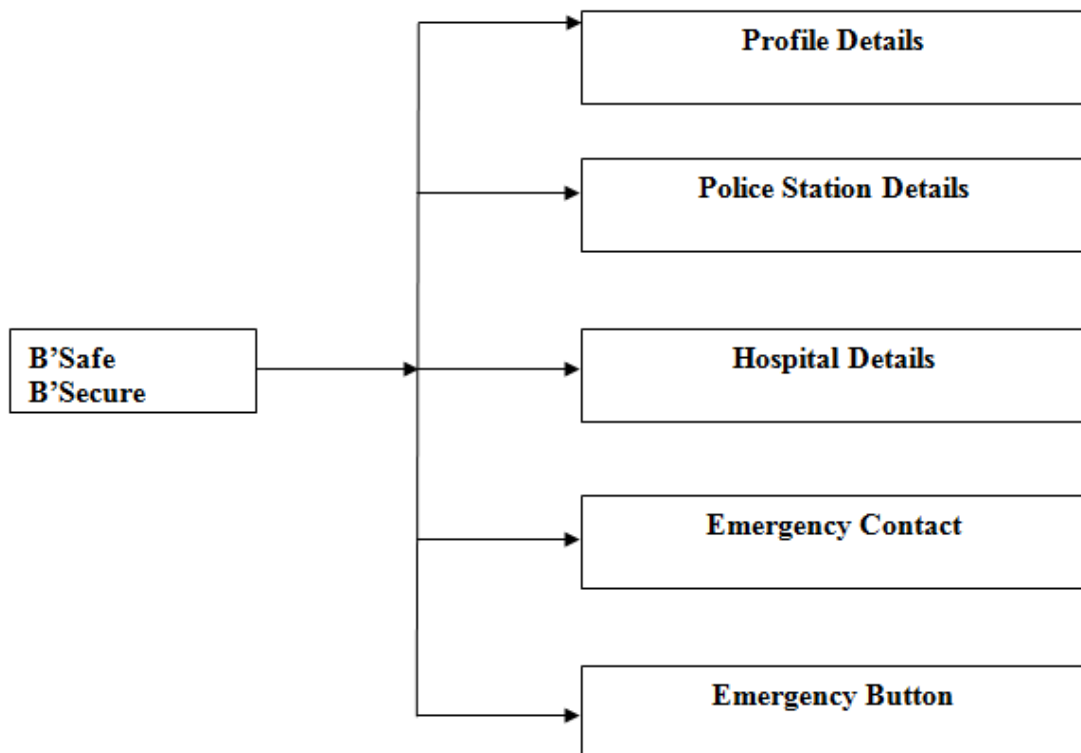
**I. Level-0 DFD**

Shows outline of the system models.



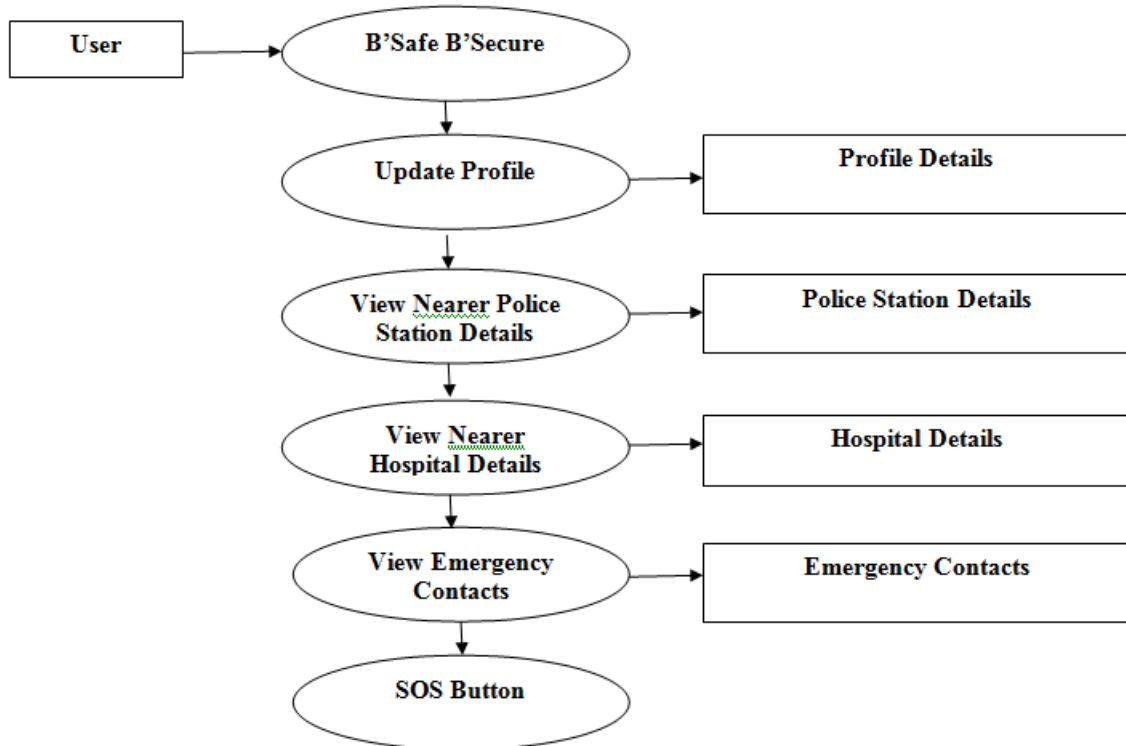
**II. Level-1 DFD**

This Shows the separation of all external modules, relationship between those modules and the application.

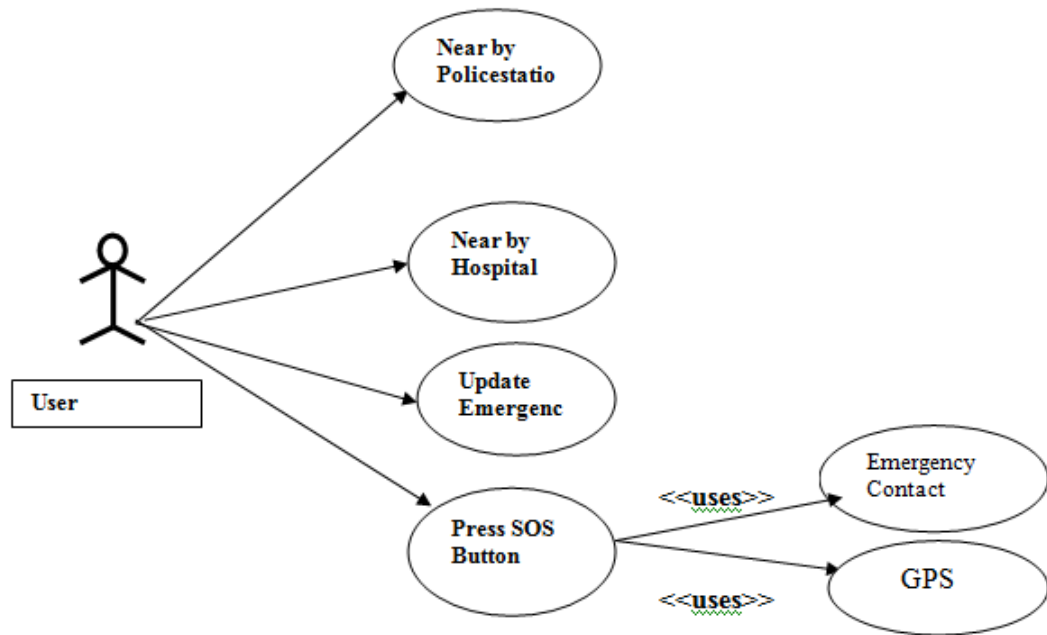


### III. Level-2 DFD

This differentiates the modules frontend and backend



***E. UML(Unified Modelling Language)***



**III. Technologies Used**

***A. Functional Requirement***

This specification is used to specify the requirements for the initial implementation of the system and update the system in future. The software requirement specification bridges the gap between client/user and the system developer. This is the document that describes the user needs accurately.

***B. Performance Requirement***

This document will provide general description of the project product perspective, and overview of requirement, general constraint and user view of the product while using. In addition will also provide the specific requirement and functional needs for this project such as interface, functional and performance requirements. The purpose of this software requirement specification is to properly document the requirement of the user necessary in order to build this application.

***C. Software Requirement***

This system compromises an Android Operating System, using Java has a core language, with Android SDK 2.3 has its version, Implementation of Front end is done by XML and we have used SQLite has back end, the documentation of this system is done using MS-Office.

#### ***D. Java Platform***

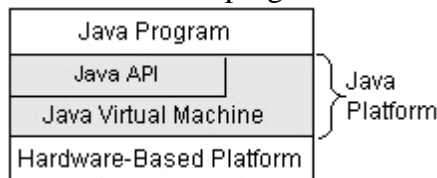
A platform is the hardware or software environment in which a program runs. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other, hardware-based platforms. Most other platforms are described as a combination of hardware and operating system. The Java platform has two components:

The Java Virtual Machine (Java VM) and The Java Application Programming Interface (Java API)

Java VM is the base for the Java platform and is ported onto various hardware-based platforms.

The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets.

The Java API is grouped into libraries (packages) of related components. The following figure of Java Structure depicts a Java program, such as an application or applet, that's running on the Java platform. As the figure shows, the Java API and Virtual Machine insulates the Java program from hardware dependencies.



**Figure Java Structure**

As a platform-independent environment, Java can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring Java's performance close to that of native code without threatening portability.

#### ***E. Android SDK 2.3***

Android is an operating system based on Linux with a Java programming interface[2]. The Android Software Development Kit (Android SDK) provides all necessary tools to develop Android applications. This includes a compiler, debugger and a device emulator, as well as its own virtual machine to run Android programs.

Android is primarily developed by Google. Android allows background processing, provides a rich user interface library, supports 2-D and 3-D graphics using the OpenGL libraries, access to the file system and provides an embedded SQLite database.

Android application consists of different components and can re-use components of other applications. This leads to the concept of a *task* in Android; an application can re-use other Android components to archive a task.

#### ***F. Android Development Tools***

Android is a widely anticipated open source operating system for mobile devices that provides a base operating system, an application middleware layer, a Java software development kit (SDK), and a collection of system applications. Android mobile application development is based on Java language codes, as it allows developers to write codes in the Java language as illustrated in the below architecture figure of Android structure.





**Figure Android Structure**

Android will ship with a set of core applications including an email client, SMS program, calendar, maps, browser, contacts and others. All applications are written using the Java programming language.

### **I. Android SDK**

The Android Software Development Kit (SDK) contains the necessary tools to create, compile and package Android application. Most of these tools are command line based.

The Android SDK also provides an Android device emulator, so that Android applications can be tested without a real Android phone. You can create Android virtual devices (AVD) via the Android SDK, which run in this emulator.

The Android SDK contains the Android debug bridge (ADB) tool which allows to connect to an virtual or real Android device.

## **II. ADT**

Google provides the Android Development Tools (ADT) to develop Android applications with Eclipse. ADT is a set of components (plug-ins) which extend the Eclipse IDE with Android development capabilities.

ADT contains all required functionalities to create, compile, debug and deploy Android applications from the Eclipse IDE. ADT also allows to create and start AVDs.

The Android Development Tools (ADT) provides specialized editors for resources files, e.g. layout files. These editors allow to switch between the XML representation of the file and a richer user interface via tabs on the bottom of the editor.

## **III. Dalvik Virtual Machine**

The Android system uses a special virtual machine, i.e. the Dalvik Virtual Machine to run Java based applications. Dalvik uses an own bytecode format which is different from Java bytecode.

Therefore you cannot directly run Java class files on Android, they need to get converted in the Dalvik bytecode format.

## **IV. Eclipse IDE**

Eclipse[1] is a multi-language software development environment comprising an integrated development environment (IDE) and an extensible plug-in system. It is written mostly in Java. It can be used to develop applications in Java and, by means of various plug-ins, other programming languages including Ada, C, C++, COBOL, Perl, PHP, Python, Ruby (including Ruby on Rails framework), Scala, Clojure, Groovy and Scheme. Development environments include the Eclipse Java development tools (JDT) for Java, Eclipse CDT for C/C++ and Eclipse PDT for PHP, among others.

The initial codebase originated from Visual Age. The Eclipse SDK (which includes the Java development tools) is meant for Java developers. Users can extend its abilities by installing plug-ins written for the Eclipse Platform, such as development toolkits for other programming languages, and can write and contribute their own plug-in modules. Released under the terms of the Eclipse Public License, Eclipse SDK is free and open source software. It was one of the first IDEs to run under GNU Class path and it runs without issues under Iced Tea.

Android is the head-to-head competitor for iOS (Apple) created by Google Inc. and Open Handset Alliance. Now a days its becoming more and more popular among the mobile app developers because of its simplicity, reliability and ease of coding.

There are many ways to develop Android applications on your PC. The easiest way is integrating the ADT (Android Developing Tools) with the Eclipse IDE.

## **V. SQLite Database**

SQLite[2] is an ACID-compliant embedded relational database management system contained in a small (~275 kB) C programming library. SQLite implements most of the SQL standard, using a dynamically and weakly typed SQL syntax that does not guarantee the domain integrity. In contrast to other database management systems, SQLite is not a separate

process that is accessed from the client application, but an integral part of it. SQLite read operations can be multitasked, though writes can only be performed sequentially. The source code for SQLite is in the public domain. SQLite is a popular choice for local/client storage on web browsers. It has many bindings to programming languages. It is arguably the most widely deployed database engine, as it is used today by several widespread browsers, operating systems, and embedded systems, among others. SQLite is an open source embeddable database engine written in C by D. Richard Hipp. It is entirely self-contained with no external dependencies.

It was introduced as an option in PHP V4.3 and is built into PHP V5. SQLite supports much of the SQL92 standard, runs on all major operating systems, and has support for the major computer languages. SQLite is also surprisingly robust. Its creator conservatively estimates that it can handle a Web site with a load of up to 100,00 hits a day, and there have been cases where SQLite has handled a load 10 times that.

Databases have been an integral part of software applications since the dawn of the commercial application market several decades ago. As crucial as database management systems are, they also come with a large footprint, and considerable overhead in system resources and administration complexity. As software applications become less monolithic and more modular, a new type of database can be a better fit than the larger and more complex traditional database management systems. Embeddable databases run directly in the application process, offer zero-configuration run modes, and have very small footprints. This article introduces the popular SQLite database engine and describes how to use it in application development. SQLite's support of the SQL92 standard includes indices, limitations, triggers, and views. SQLite does not support foreign key constraints, but supports Atomic, Consistent, Isolated, and Durable (ACID) transactions.

#### ***G. Hardware Requirements***

This System is built on Intel Pentium 4 CPU, having clock speed of 3.0GHz, with RAM size 512MB, 40Ghz of hard disk capacity, display is of 15 inch color monitor, and internet keyboard.

#### ***IV. Application Working And Results***

Figure 1. Illustrates the general view of icons of various applications in an android phone, our application has been named as B'safe & B'secure.



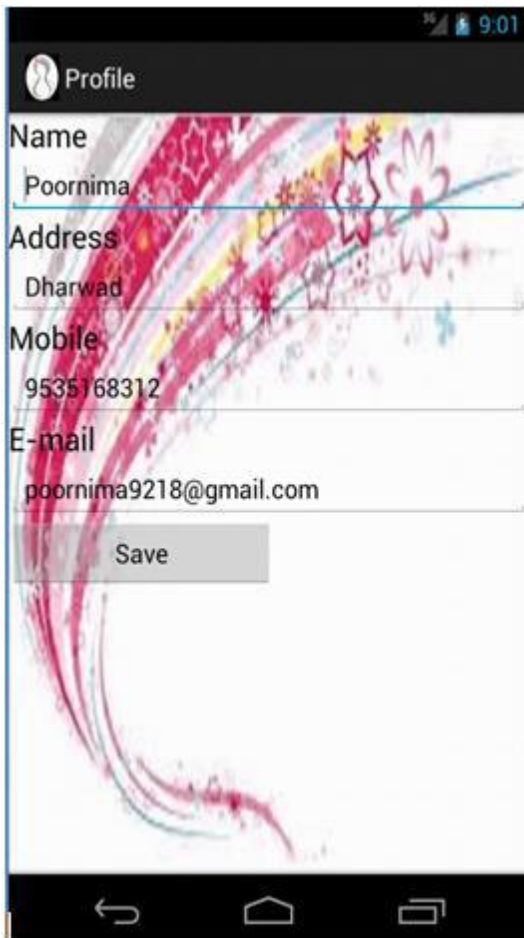
**Figure 1**

Figure 2. Illustrates graphical view of developed application it comes into view soon after clicking on B'Safe & B'Secure icon illustrated in Figure 1. This contains easily recognizable icons as illustrated in Figure 2, those are: User Profile icon, Contacts icon, Police Station icon, Hospital icon, and SOS button.



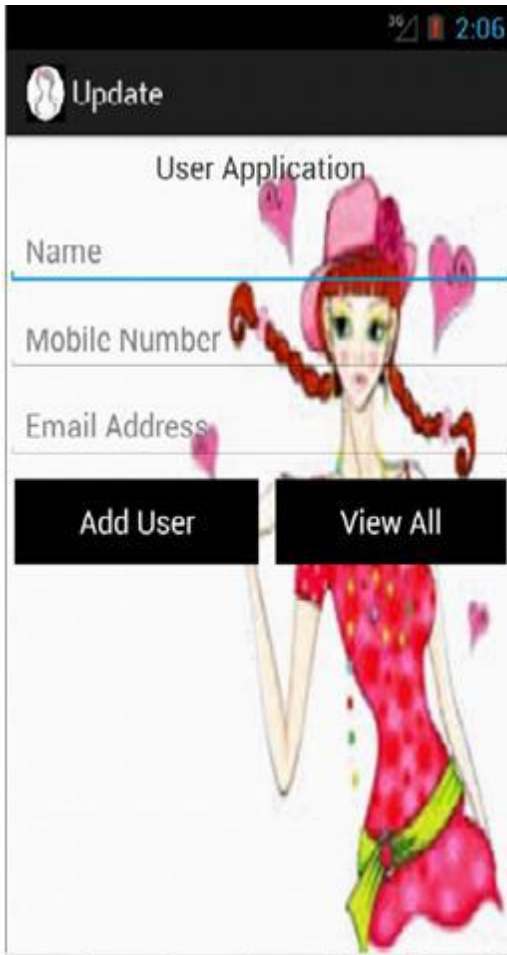
Figure 2

On Clicking on User Profile icon we can enter the user details as illustrated in Figure 3. This contains details such as Name of the user, Address of the user, his/her Mobile Number and Email-id. These details are saved by clicking on save button. It has been designed by keeping all the constraints in mind like, the mobile number is limited to 10 digits and user needs to enter only the digits, email-id is set using standard email-id format, if user enters some wrong format or misses @ or .com then it flashes an error.



**Figure 3**

Clicking on Contacts icon of Figure 2, User can add the contact details of his/her close associates such as family members or friends, who can reach immediately for help in case of emergency. Illustrated in Figure 4, a user can add a new contact which contains Name, Mobile Number, and Email-id fields. Which can be viewed soon after clicking on View button of the application, it also has Add User button clicking on which we can add new user again into the contacts of the application.



**Figure 4**

On clicking View All button the contacts appears as illustrated in Figure 5. Which again contains Add new emergency contact button, clicking on this button we can add a new contact, it also contains an Edit icons and Delete symbol for each of the contacts in the list, hence the user can update his contacts by clicking on Edit icon in case of change in mobile number or email-id, even he/she can Delete any of the contacts as per his/her requirement.



**Figure 5**

Figure 6 illustrates the display of nearby police station names obtained through GPRS which requires an internet connection. This takes place by clicking on Police Station icon illustrated in Figure 2. Here in Figure 6, the police station name accessed is Police Station itself.





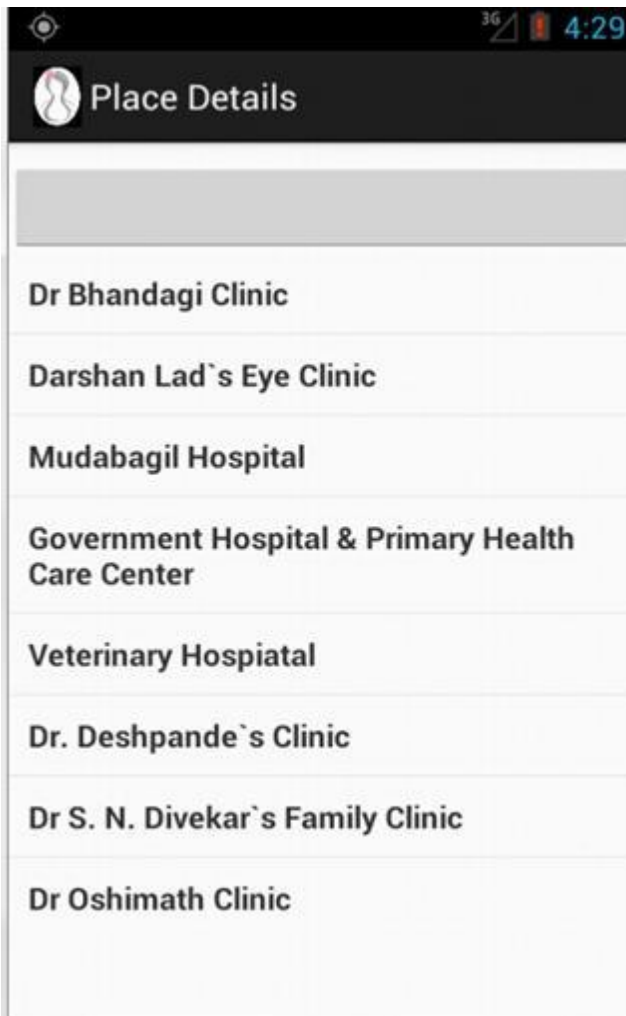
**Figure 6**

By clicking on the name of the police station it gives the details of the police station such as Name, Address, Phone Number, and position of the place in terms of Latitude & Longitude which is illustrated in Figure 7.



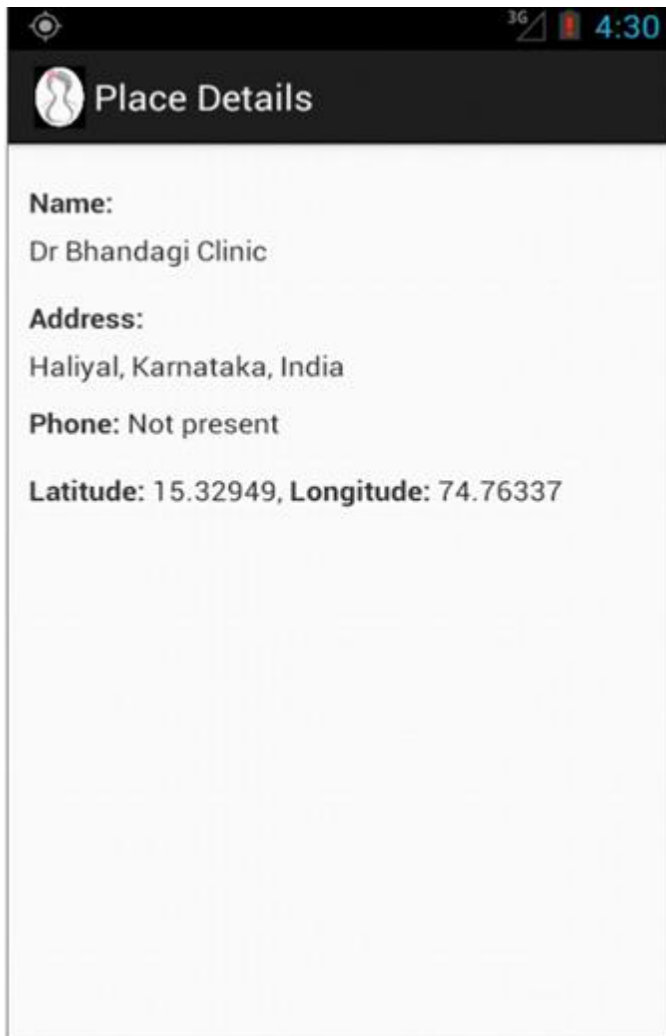
**Figure 7**

Figure 8 illustrates the display of nearby hospital names obtained through GPRS which also requires an internet connection. This takes place by clicking on Hospital icon illustrated in Figure 2. Here the names of hospital are displayed in a list as shown in Figure 8.



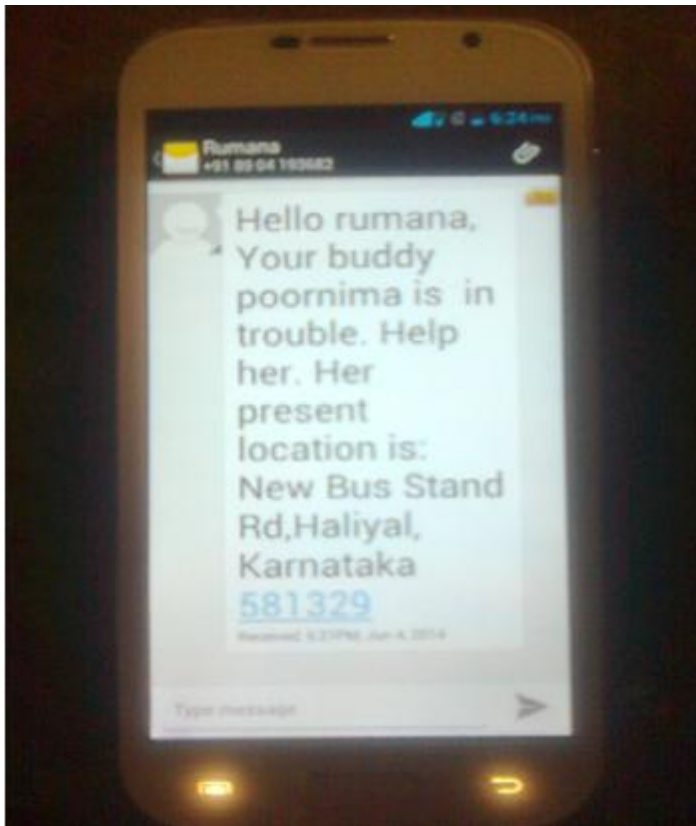
**Figure 8**

By clicking on the name of any of the hospital in the list it gives the details of the hospital such as Name, Address, Phone Number, and position of the place in terms of Latitude & Longitude which is illustrated in Figure 9, where the result is obtained by clicking on hospital named Dr Bhandagi Clinic.



**Figure 9**

The last and most important feature of this application is Send SOS button illustrated in Figure 2. Just a tap on the SOS button will send the emergency message to all the contacts added in the Emergency Contacts List. With the victim's place & location being fetched automatically. So that the nearby associate can reach the victim early for his/her help. The sample result is illustrated in Figure 10.



**Figure 10**

### ***V. Conclusion And Future Work***

This paper covers all the features that is allied in B'Safe & B'Secure. Once developed the application will act like a weapon for women that will ensure the safety and security. This works on the smartphone with the android operating system.

The application acts as a rich tool for sending predetermined message to the registered contacts including a call for help that automatically includes an address and exact location, the victim can access the pre-programmed hotline numbers along with the location and contacts of local nearby police station and hospitals.

Thus this app will go a long way and reduces the risk of becoming the victim.

### ***References***

- [1] Introducing Basic development of android book named "*Hello, Android*", third addition written by "Ed. Burnette", published by "The Pragmatic Programmers".
- [2] "*Android Application Development*" by "Barry Burd".
- [3] "*Sexual violence chapter 6*". World Health Organization.
- [4] [http://www2.paho.org/hq/dmdocuments/violence against-women-lac](http://www2.paho.org/hq/dmdocuments/violence%20against-women-lac)